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Attitudes and Knowledge of Healthcare Providers Regarding Patients with Intellectual Disability and the Impact on Analogue Clinical Decision-Making

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ATTITUDES AND KNOWLEDGE OF HEALTHCARE PROVIDERS REGARDING PATIENTS WITH INTELLECTUAL DISABILITY AND THE IMPACT ON ANALOGUE CLINICAL DECISION-MAKING

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Dissertation Approval

This is to certify that the thesis presented to us by Alexandra Freed Santoro on the 5th day of April, 2018, in partial fulfillment of the requirements for the degree of Doctor of Psychology, has been examined and is acceptable in both scholarship and literary quality.

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Abstract

Throughout their careers, physicians, particularly those in primary care settings, can expect to treat patients with intellectual disability (ID) across the lifespan. Nevertheless, little attention is given to preparing medical students to effectively treat patients with ID through education and clinical training opportunities. The purpose of this study was to examine how knowledge and attitudes toward patients with ID may impact analogue clinical decision-making at different stages of physician education and career. Included in the review of the current literature is research relating to physician attitudes, education, and clinical decision-making; the biological, psychological, and social considerations in treating patients with ID; and an overview of theoretical models relevant to the development of attitudes and approaches to providing medical treatment. Medical students, interns, residents and attending primary care physicians were recruited to complete a series of online questionnaires, including a demographics survey, a knowledge quiz, an explicit measure of attitudes toward patients with disabilities, and a clinical case vignette accompanied by a rating scale regarding clinical decision-making. The general outcome of this research found that there was no significant interaction between physicians' level of training and patients' level of ID severity when specifically examining those with mild ID, moderate ID, or typical cognitive functioning based on the variables of physician knowledge, attitudes, and analogue clinical decision-making. However, interactions that were perceived as valuable with members of the ID population related to more positive attitudes toward people with disabilities, which may in turn relate to the quality of patient care. As such, future studies may wish to focus on the influence of provider attitudes on patient and caregiver satisfaction.

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Chapter 1: Introduction

Statement of the Problem

According to the *Diagnostic and Statistical Manual of Mental Disorders, 5th Edition* (*DSM-5*; American Psychiatric Association [APA], 2013), intellectual disability (ID) is defined by deficits in intellectual functioning, which include reasoning, problem solving, planning, abstract thinking, judgment, academic learning, and learning from experiences. A second component of ID relates to deficits in adaptive functioning, which are characterized by limited functioning in one or more activities of daily life, such as communication, social participation, and independent living across multiple environments. The onset of these deficits occurs during childhood development, and the severity level may range from mild to profound (APA, 2013).

In 2010, the Census Bureau estimated that there are approximately 1.2 million adults living with ID in the United States (Brault, 2012), and general practitioners can expect to treat approximately 40 individuals with ID in a patient list size of 2,000 (Lindsay, 2011). Given the prevalence of ID, physicians are likely to encounter this patient population during their careers; therefore, their preparedness to treat this population should be evaluated. The quality of patient care is a noteworthy concern to both individuals with ID as well as their caregivers, as medical professionals holding less positive attitudes toward patients with ID has been identified as a barrier to receiving quality healthcare (Lewis & Stenfert-Kroese, 2010). For example, a survey of nurses revealed that when treating a patient with ID, nursing staff members were less likely to complete invasive procedures, spend time explaining treatment plans, or to ask if the patient was experiencing pain. They were also more likely to request a caregiver be

present (Lewis & Stenfert-Kroese, 2010). In turn, a qualitative study involving a focus group of individuals with ID and their caregivers revealed themes such as fear and anxiety related to being in the healthcare setting, inadequate communication with providers, experiences of discrimination, and negative comments from healthcare staff members (Gibbs, Brown, & Muir, 2008). Such concerns highlight areas in which healthcare providers' negative attitudes toward or stereotyped perceptions of patients with ID may result in inadequate care. Furthermore, healthcare providers' attitudes have been identified as one of the most salient barriers to accessing adequate healthcare services among patients with ID (Lewis & Stenfert-Kroese, 2010).

There are a number of considerations that may contribute to the development of physicians' attitudes toward patients with ID. These factors include prior experiences (Uysal, Albayrak, Koçulu, Kan, & Aydin, 2014), education (Sahin & Akyol, 2010; Tervo, Palmer, & Redinius, 2004), and perceptions of past interactions (Tervo et al., 2004). The incorporation of didactic training and workshops that focus on improving attitudes by educating medical students about treating patients with ID have been shown to be effective (Moroz et al., 2010; Saketkoo, Anderson, Rice, Rogan, & Lazarus, 2004), but medical students who have not had additional training or relevant experiences may be unfamiliar with the healthcare needs of patients with ID. Subsequent negative attitudes or discomfort medical students experience when working with patients with ID may then have a potentially negative impact on the quality of patient care (Tracy & Iacono, 2008). For example, Parchomiuk (2013) revealed frequent disregard for addressing sexual health among patients with ID. This finding could be related to a perception that assumes individuals with ID are incapable or unlikely of having intimate relationships.

Assumptions such as this may result in the neglect of relevant healthcare needs within this population, reducing the quality of patient care. This reduced quality of care may then result in certain medical issues (e.g., sexually transmitted diseases) or behavioral health risks (e.g., unprotected sex) being overlooked or considered as being irrelevant or unimportant. In summary, ID is relatively common, but medical students are not typically trained in working with these patients and, therefore, may hold negative stereotypes, which may then negatively affect their treatment approaches and result in limited or inadequate care for this population.

Purpose of the Study

Because negative attitudes may be detrimental to the quality of care patients with ID receive, it is necessary to examine the attitudes and knowledge of medical trainees and professionals and how these variables may impact clinical decision-making. Although it is understood that different factors such as prior experiences (Uysal et al., 2014), the perceptions of past experiences (Tervo et al., 2004), and education (Sahin & Akyol, 2010; Tervo et al., 2004) impact the formation of these attitudes, medical students' attitudes toward patients with ID over the course of standard medical training and the related impact of such attitudes on clinical decision-making for patients with ID have yet to be examined. Additionally, empathy in medical students has been shown to decrease by the third year of medical school, which is also the year in which the training emphasis tends to shift from more didactic approaches to direct patient care (Hojat et al., 2009). In consideration for this shift in empathy, it is possible that a student's year in medical school may impact the way in which he or she approaches and perceives certain patient populations. Hence, the purpose of this study was two-fold: to examine the function of

medical professionals' level of medical training on their knowledge of and attitudes toward patients with ID, and to determine how medical professionals' attitudes toward patients with ID impact treatment approaches and clinical decision-making. By understanding the development of medical professionals' attitudes toward treating patients with ID and the influence of these attitudes on patient care, the quality of healthcare for individuals with ID may be improved. As such, this study sought to answer the following questions: What is the function of one's level of medical training on attitudes toward patients with ID? What is the impact of attitudes of physicians and physicians-in-training on the manner in which routine medical care is provided to patients with ID?

Chapter 2: Literature Review

The Americans with Disability Act (ADA) defines disability as a legal term that refers to an impairment that limits one or more major activities of an individual's daily life (ADA National Network, n.d.). Disability may or may not be visible, and the term refers to those with physical and cognitive impairments, including mental illness (ADA National Network, n.d.). The limitations and abilities of an individual with disabilities vary, and many individuals with certain conditions, including disabilities, may experience stigma and negative stereotyping. The experience and impact of stigma may be encountered in many different facets of an individual's life, including healthcare (Boyle et al., 2010). Such stigma in healthcare may result in disabled patients' health needs being unmet. Such needs of the ID population may be examined and considered within a biopsychosocial framework.

Biological Health Considerations

Although patients with ID may be at risk of developing the same types of physiological health concerns as the general population, the presentation of such ailments may be unique. For example, physical conditions may be accompanied by challenging behaviors, particularly among individuals who struggle to communicate their symptoms (de Winter, A. A. C. Jansen, & Evenuis, 2004). Specifically, conditions that have been shown to be associated with challenging behavior in the ID population include urinary incontinence, visual impairment, physical pain, and sleep disturbance (de Winter et al., 2004). Other conditions that have been suggested to warrant further research with regard to the potential associations with challenging behavior include gastrointestinal conditions such as gastroesophogeal reflux disorder (GERD) and constipation, infectious diseases

such as ear infections, hormonal changes such as menopause and thyroid conditions, dental diseases, and cardiopulmonary diseases (de Winter et al., 2004). Additionally, correlations have been identified between the co-occurrence of ID and the presence of certain conditions, such as seizures, neurological conditions, sensory impairment, endocrine disorders, and hypothyroidism, as well as chronic skin conditions (McDermott, Platt, & Krishnaswami, 1997). Due to the communication deficits ID individuals may experience, it is sometimes difficult to discern whether the behavior occurs in response to a physiological symptom or if aggressive or self-injurious behaviors are partly the cause of a physical condition. If communication deficits are present without the accompaniment of behavioral changes, physiological health concerns may be left undetected. Meta-analyses, for example, have revealed unrecognized health conditions among the ID population to frequently include visual disorders, hypertension, hypothyroidism, and epilepsy (D. E. Jansen, Krol, Groothoff, & Post, 2004). Furthermore, as individuals with ID are living longer, the behavioral considerations of health concerns relating to aging, such as dementia and menopause, are suggested as requiring further research (de Winter et al., 2004).

Psychological Health Considerations

A number of psychological health factors influence the adult ID population in various ways. Similar to the general population, adults with ID are subject to issues and considerations which impact quality of life, the presence of psychological disorders, and the experience of stigma.

Life satisfaction and stressors. General life and career stressors present in the general population are also seen in the ID population, with the addition of some unique

life stressors, such as changes in the primary caregiver role, housing options, and other life circumstances. Moreover, common stressful events may impact the individuals in the ID population differently, which may be mediated by their support systems, coping strategies, and problem-solving abilities. For example, an Italian study that examined career adaptability and hope in relation to life satisfaction among adults with ID found that demonstrating adaptability in vocational pursuits correlated with life satisfaction (Santilli, Nota, Ginevra, & Soresi, 2014). Adults with ID who have adequate supports within the community may have more life satisfaction and, therefore, be more emotionally and psychologically well (Santilli et al., 2014).

Adjusting to stressors can be difficult for individuals who are affected by ID. For example, a correlation was found between number of significant life events and the presence of depression and anxiety experienced among adults with mild to moderate ID living in residential settings, such that the more life stressors individuals experienced, the more symptoms of anxiety and depression were reported on both self-reports and informant-report measures (Hermans & Evenhuis, 2012). This finding was consistent for adults with moderate to severe ID (Hulbert-Williams et al., 2014), but whether life events are risk factors for, or simply correlates of, psychological distress remained unclear (Hulbert-Williams et al., 2014). Nevertheless, it has been acknowledged that there is a higher prevalence of mental health conditions among the ID population compared to the general population (Gibbs et al., 2008).

Anxiety. The presence of ID may result in different presentations of conditions that are commonly observed in the general population, and this includes mental health conditions. In individuals with ID, anxiety is often observed with challenging behaviors

or behavioral issues. According to a meta-analysis by Pruijssers and colleagues (2012), challenging behaviors, such as aggression and self-injurious behaviors, were associated with psychiatric conditions among the ID population; however, details of this relationship remain largely understudied. Additionally, the researchers suggested that the causal direction of the relationship between psychiatric conditions and challenging behaviors is unknown, and question whether challenging behaviors present as symptoms of underlying conditions, or if the demonstration of challenging behaviors poses as a predictor for the development of conditions such as anxiety (Pruijssers, van Meijel, Maaskant, Nijssen, & van Achterberg, 2012). In the healthcare setting, physicians may wish to consider mental health conditions such as anxiety or depression when behavior changes in a patient with ID are reported or observed.

Depression. Similar to the potential difference in presentation for symptoms of anxiety, the presence of ID may also have an influence on the presentation of depression, and indications of depression may be overlooked. In a study comparing depressive symptoms among adults with mild ID based on self-report measures versus caregiver-report, adults with ID endorsed significantly more cognitive symptoms of depression than was reported by their caregivers. Interestingly, there were no significant differences between self-report and informant-report measures with regard to somatic symptoms (Mileviciute & Hartley, 2015). These findings speak to the understanding that adults with ID may have difficulty verbally communicating their emotions to loved ones; therefore, caregivers may be more likely to notice changes in behaviors before, or rather than, cognitive symptoms. In such circumstances, the additional information a caregiver

may provide during a medical visit may be particularly valuable to treatment. Age has also been found to be a factor in the presence of depressive symptoms (Hermans, Beekman, & Evenhuis, 2013; Mileviciute & Hartley, 2015), as support staff of older adults with ID reported a higher frequency of somatic symptoms of depression than their ID clients. In contrast, younger adults with ID endorsed more somatic depressive symptoms than older adults with ID on self-report measures (Mileviciute & Hartley, 2015). This may relate to stigma reduction and mental health awareness efforts that may be impacting younger adults with ID more so than older adults, such that young adults may be more aware and forthcoming about their symptoms.

Stigma. Although individuals with ID can be subjected to stigma due to the presence of their disability, this can also be compounded by stigma they may experience when faced with additional mental health concerns. In an English survey of individuals with mild to moderate ID, self-perceptions of stigma regarding disability were found to be positively correlated with psychological distress and inversely correlated with quality of life (Ali, King, Strydom, & Hassiotis, 2015). Heightened perceptions of stigma correlated with psychological distress, increased utilization of services, and more contact with the police (Ali et al., 2015). Whereas Ali et al. (2015) noted that individuals with ID may reach out to police and service professionals due to psychological distress, other studies have suggested that service professionals may hold stigmatized views of the ID population. As a result, it is possible that service professionals' responses may contribute to the stigma ID individuals may perceive from community resources (Ali et al., 2015). In consideration of primary healthcare as a service provider, fully understanding the role of stigma among physicians is relevant and

necessary so that patients with ID are able to seek the support and resources they need in order to function optimally in the community.

Lifestyle Factors

A number of lifestyle factors impact the health of individuals in the ID population and are worth consideration during their primary care visits. Commonly identified health concerns include skin conditions, obesity, bone fractures, and hemorrhoids (Van Schrojenstein Lantman-de Valk, Metsemakers, Haveman, & Credolder, 2000). Researchers note that these physiological concerns can be tied closely to lifestyle considerations frequently found in the ID population, such as lack of exercise, limitations in mobility, and poor eating habits (D. E. Jansen et al., 2004; Van Schrojenstein Lantman-de Valk et al., 2000). In southwest England, researchers found that the rate of a body mass index (BMI) greater than or equal to 30 was approximately 10% higher among the ID population than that of the general population (Gale, Naqvi, & Russ, 2009). Additionally, a U.S. study of children ages 10 to 17 revealed that those with ID were 1.89 times more likely to experience obesity compared to typically developing peers (Segal et al., 2016). In turn, Hsieh, Rimmer, and Heller (2013) found that adults with ID were also more likely to experience obesity than the general population, and women with ID in particular exhibited a higher risk of morbid obesity. Contributing factors to the prevalence of obesity in the ID population included having a diagnosis of Down syndrome, taking medications with weight gain side effects, lack of physical activity, and drinking greater amounts of soda (Hsieh, Rimmer, & Heller, 2013). Smoking poses an additional behavioral health concern in the ID population. In an English sample of 1,097 individuals with ID, approximately one in four women with asthma and approximately

one in three men with asthma were smokers (Gale et al., 2009). In a healthcare setting, patients with ID may benefit from discussing these health behaviors with their providers, as well as ways in which they can remain physically active, maintain healthy eating habits, and develop strategies to maintain healthier lifestyles overall.

Sexual health. In line with maintaining a healthy lifestyle, sexual health of adults within the ID population is often under-addressed in healthcare. Previously, sterilization was a prominent option for adults with ID to prevent unwanted pregnancy (McCarthy, 2009). At present, oral contraception is commonly prescribed to women with ID to prevent unwanted pregnancy, as well as other concerns, such as managing premenstrual symptoms (McCarthy, 2009). Women with ID were at one time more likely to use Depo-provera than other women (Weiner, 1997). It is possible that this longer-acting method may have been preferred for women with ID, in that neither the woman nor a caregiver would need to monitor this medication on a daily basis. Despite the use of contraceptives, multiple studies indicate that adults with ID have a limited understanding of sexual and reproductive health and have little involvement in the decision-making process relating to their reproductive health.

In interviewing ID women in southeast England, McCarthy (2009) found that women with ID lacked knowledge of their reproductive systems and how contraception works. In being prescribed contraception, most presented at their medical appointments with staff members or other caregivers, which was largely viewed as a positive aspect amongst those who were interviewed; however, participants indicated that their doctors typically spoke to their staff members or caregivers as opposed to directing questions to patients. Of the 23 participants, only five reported that the decision to use contraception

was theirs. The majority of the participants reported that their primary care physicians, staff, or parents had decided that contraception was appropriate for them (McCarthy, 2009). Rationale for utilizing contraception varied amongst participants, including pregnancy prevention for women who reported being sexually active, management of menstrual symptoms, and as a proactive preventative strategy due to the consideration of ID women as a vulnerable population (McCarthy, 2009). Depo-provera was a commonly utilized contraception in the sample, possibly for its long-acting effects, despite consideration of the woman's age, fertility, or status of sexual activity (McCarthy, 2009). These findings highlight not only the potential for healthcare decisions made on behalf of patients with ID to be influenced by assumptions regarding lifestyles, but also brings attention to concerns that patients with ID may lack active involvement and understanding in their healthcare.

In further consideration of the concerns regarding a lack of understanding of sexual health among patients with ID, Jahoda and Pownall (2014) found that nondisabled young adults had significantly greater sexual knowledge than peers with ID. Gender was found to be a significant factor, such that nondisabled women demonstrated more knowledge than nondisabled men, whereas the opposite was found for those with intellectual disabilities, such that young men with ID demonstrated more sexual knowledge than women with ID (Jahoda & Pownall, 2014). In addition to general misconceptions about sex and pregnancy, consistent with findings by McCarthy (2009), individuals with ID had a limited understanding of contraception and how contraception works (Jahoda & Pownall, 2014). Furthermore, Jahoda and Pownall found that few participants with ID had obtained sexual health information from their doctors as

compared to the extent to which nondisabled peers reported the accessibility of this information from their primary care physicians (Jahoda & Pownall, 2014). This finding may speak to a concern that doctors may be more likely to assume that patients with ID are not sexually active and, therefore, may be more likely to refrain from addressing sexual health matters with patients with ID.

Impact of Disability on Healthcare

The label of a disability, whether cognitive or physical, may impact the way in which an individual is perceived by other people, including healthcare professionals. For example, medical students have been found to often associate the word "disability" with objects, such as wheelchairs, as well as negativistic language, including words such as "unlucky" or phrases such as "feel sorry for" (Byron, Cockshott, Brownett, & Ramkalawan, 2005). Although many have expressed an eagerness to help those with disabilities, medical students have also expressed nervousness about working with this patient population (Byron et al., 2005). Although it is common to associate physical disability aids, such as wheelchairs, when considering disability, the term also refers to those with cognitive deficits and serious mental illnesses. Similar to those with physical or cognitive disabilities, individuals with serious and persistent mental illness face stigmatization and marginalization in healthcare. For example, individuals with co-occurring mental illness and diabetes were found to be less likely to receive a broad range of treatment services that would have been offered to those without mental illness (Goldberg et al., 2007). Countering these findings, Welch, Litman, Borba, Vincenzi, and Henderson (2015) found that physicians' clinical decision-making behaviors did not differ in their prescribed treatment protocols for diabetes among individuals with serious

mental illness as compared to that which was prescribed to a control group; however, negative attitudes, such as doubting the patients' trustworthiness, were reported in response to treating those with mental illness. In this case, physicians' attitudes toward the patient did not significantly impact the line of treatment they received; however, the consideration of a treatment protocol may not fully address the quality of care being delivered, such as the level of collaboration between the patient and his or her physician.

Prior to the increasing emphasis on person-centered care, patients with serious mental illness were typically isolated from society, oftentimes in prisons or asylums (Fardella, 2008). The recovery model demonstrates the current status of the continual shift from controlled, directive care of those with serious mental illness to a more autonomous, person-centered, and collaborative model of care (Fardella, 2008). This model represents a shift from the medical model of disability to a civil rights model of disability (Davidson et al., 2007), emphasizing that the individual is of greater value than the sum of his or her symptoms. It also moves away from the notion that the symptoms of a disability, disorder, or addiction must be cured in order to demonstrate positive outcomes. Although the severity of a person's condition may impact the extent to which he or she is able to make autonomous decisions about his or her healthcare, the recovery model and person-centered healthcare gives room for individuals with different needs to be regarded as members of their treatment teams. Nevertheless, the presence and severity level of ID may not only impact the patient's ability to actively participate in medical decisions, but may also negatively impact his or her healthcare providers' attitudes and subsequent clinical decisions. Furthermore, numerous health conditions are suggested to have a tendency to be overlooked or untreated in the ID population, which may be due in

part to the inaccessibility of healthcare services and the lack of knowledge and awareness of the needs of patients with ID (Gibbs et al., 2008).

Clinical Decision-Making

Physicians' styles of clinical decision-making vary, and some prefer patients to be more involved in the decision-making process than others (Murray, Pollack, White, & B. Lo, 2007). Three identified styles of clinical decision-making have been described in the literature: (a) paternalism, in which the physician makes decisions with minimal input from the patient, (b) consumerism, in which physicians provide options to patients from which to choose, and (c) shared decision-making, in which physicians and patients reach decisions together (Murray et al., 2007). Shared decision-making has gained popularity as a desirable method of providing healthcare. It also exemplifies the integrated approach to healthcare in which the patient is regarded as a critical member of the treatment team (D'Amour, Ferrada-Videla, San Martin Rodriguez, & Beaulieu, 2005). For example, in evaluating women's roles in medical decision-making for breast cancer treatment and the correlation with quality of life, Hack, Degner, Watson, and Sinha (2006) found that patients who participated in a shared decision-making approach with their providers also reported having a greater overall quality of life. Furthermore, physicians who practice shared decision-making were more likely to encourage patients to seek more information and believed they had enough time to spend with their patients in visits (Murray et al., 2007). Despite the benefits of the shared decision-making model, the model has not been found to lead consistently to greater or more positive patient outcomes as compared to other treatment strategies. A meta-analysis that examined the use of shared decision-making and patient outcomes found that patients most frequently expressed positive

cognitive and affective responses to the shared decision-making model, with less of an effect noted on the patients' behavioral health and physiological health responses (Shay & Lafata, 2015). As a result, it is possible that the shared decision-making approach may in some cases relate more closely to patient satisfaction rather than treatment outcomes.

It is also possible the physicians' attitudes and perceptions of their patients' abilities to make informed decisions about their healthcare may impact this decision-making process. Through quantitative and qualitative measures in response to patient vignettes, Welch et al. (2015) found that although relatively few differences in decision-making practices were noted in charting, qualitative measures revealed physicians trusted patients with schizophrenia with bizarre affect less and were more likely to rely on other individuals for health information about these patients. It was also noted that physicians reported that they would be more likely to speak to colleagues about patients with schizophrenia and bizarre affect, which was theorized to shape the physicians' attitudes and expectations about the patients prior to their visits (Welch, Litman, Borba, Vincenzi, & Henderson, 2015). Similarly, it is possible that visits with patients with other types of cognitive impairment, such as ID, may result in similar difficulties with shared decision-making efforts, particularly if the physician feels uncomfortable with the patient with ID. It was suggested that these difficulties may be alleviated partially when physicians seek support from colleagues (Welch et al., 2015). This support can be gained through professional networks, and the benefits include both the dissemination of knowledge for more informed medical decision-making, as well as social support for the provider (Cohen, Levy, Castel, & Karkabi, 2012). In some cases, however, a physician's apprehension may be dependent on the severity of the patient's ID diagnosis, as well as

any unique behaviors that may be present, which may affect the patient's ability to participate fully in a more collaborative decision-making approach.

Theoretical Models

Medical model. One common manner of conceptualizing disability is the medical model, which views disability as a product of psychological and physiological concerns (Anastasiou & Kauffman, 2011). Concerns have been raised about this model, specifically in relation to the potential negative effects the model may have on the treatment that is provided to those with disabilities. It has been suggested that the model does not account adequately for the influence of social factors on the perpetuation of disability and its effects on an individual's functioning (Anastasiou & Kauffman, 2011). Although it has been argued that healthcare that is conceptualized solely through the medical model may result in the promotion of negative attitudes and stigma (Anastasiou & Kauffman, 2011), the model remains necessary in providing accurate and effective patient care. It is possible for the medical model to coexist with other models that focus more heavily on the social factors influencing perceptions of disability, possibly optimizing treatment and demonstrating a more holistic approach to treatment as a result.

Social constructionist model. An additional and possibly supplemental perspective to the medical model is the social constructionist model, which conceptualizes disability as a personal quality of the patient rather than a problem in need of change (Anastasiou & Kauffman, 2011). This model views "disability" as a social-construct and identifies systemic barriers, negative attitudes, and social exclusion as they relate to the manner in which disability is perpetuated (Anastasiou & Kauffman, 2011). A shift away from a purely medical model allows healthcare providers to approach the

treatment of patients with disabilities more holistically, and to regard disability as one of many aspects that factor into an individual's identity and overall health and well-being.

Therefore, the social constructionist model encourages the consideration of ways in which the attitudes of healthcare professionals influence the subsequent healthcare treatment provided to patients with ID. Certain areas of health—perhaps due to social stigma and assumptions about the capabilities or lifestyles of individuals with ID—may be overlooked among the ID population. For example, studies have reported that students feel discomfort in addressing sexual health with patients who have ID (Tervo, Azuma, Palmer, & Redinius, 2002). Some providers may assume that limitations in cognitive abilities warrant such health behaviors as unlikely or irrelevant in particular patients' lives. The challenge of reducing stereotypes and prejudices that may be held by medical practitioners may be addressed through social psychological processes. One particularly relevant theory to the present study is Allport's (1954) intergroup contact theory, which suggests that interacting with a perceived out-group may result in reduced prejudice. Such contact between physicians and individuals with disabilities may result in a similar effect.

Intergroup contact theory. Allport's (1954) intergroup contact hypothesis proposed that prejudice could be reduced between groups when situations containing four critical elements exist. The four conditions proposed as being necessary to reducing prejudice within an intergroup interaction are equal status, common goals, intergroup cooperation, and the support of authorities, law, or customs (Pettigrew, 1998).

Equal status. Groups who perceive themselves as being of equal status to one another is thought to result in reduced prejudice (Pettigrew, 1998). Due to differences in

education, income, and other social factors, the physician-patient relationship may be vulnerable to imbalances in perceived status, such that the physician and patient do not view one another as equals. Although this phenomenon may occur in treating different patient populations, it may be particularly relevant when treating patients who have lower cognitive functioning. Physicians may be able to moderate this potential imbalance by developing strong working alliances with patients with ID by welcoming patients' thoughts and opinions regarding their care.

Common goals. Common goals involve shared objectives between groups (Pettigrew, 1998). In a physician-patient relationship, the process of sharing goals may involve communicating effectively with the patient to develop an understanding of the patient's goals. Although communicating with a patient with ID may bring an additional set of communication challenges, physicians who take the time to understand the needs of a patient with ID may be able to better connect and effectively treat the patient and identify ways in which common goals can be established and integrated into treatment.

Intergroup cooperation. Intergroup cooperation emphasizes the need for members of different groups to work together in an interdependent and collaborative fashion (Pettigrew, 1998). A physician and a patient with ID may engage in cooperation through collaborative dialogue and treatment planning, which may or may not include additional involvement of a caregiver. This cooperative approach can also be interpreted as a shared decision-making style (Murray et al., 2007), which emphasizes the collaborative approach to treatment between the patient and his or her physician.

Gaining support. The final component of the theory involves gaining "support of authorities, law, or custom" (Pettigrew, 1998, p. 67), which proposes that intergroup

contact and the reduction of prejudice have more positive effects when society and other organizational structures accept, support, or promote the interaction between the groups (Pettigrew, 1998). This concept may be applied when a medical school supports and encourages medical students to engage in clinical practice with patients with ID by offering relevant clinical training experiences and didactic learning opportunities. As a result, medical schools that demonstrate support and emphasize the importance of providing effective treatment to patients with ID may raise awareness about this population and its unique needs among its medical students and, in turn, may have a positive impact on the development of students' attitudes toward this population. This has been demonstrated through various disability workshops in which medical students had direct contact with individuals with disabilities as part of their medical training. This particular program resulted in medical students reporting more positive attitudes toward patients with disabilities from pre- to post-measurement (Tracy & Iacono, 2008).

Expanding on Allport's (1954) work, Pettigrew (1998) outlined four conditions through which prejudiced attitudes toward a group improve. These conditions include (a) learning about the out-group, (b) changing one's behavior, which typically occurs prior to changes in attitudes, (c) creating affective ties to include positive emotions and empathy toward the out-group, and (d) in-group reappraisal, in which perspectives toward the out-group are reevaluated and ultimately changed (Pettigrew, 1998). In the present study, intergroup contact theory is drawn upon in order to consider the effect experiencing and learning about an out-group—namely, patients with ID—has on the development of knowledge, attitudes, and clinical decision-making behaviors of physicians and physicians-in-training.

Attitudes toward Disability in Healthcare

Despite efforts to raise awareness and reduce stigma of various disabilities, negative attitudes and perceptions of individuals with disabilities remain of great concern. Miller, Ross, and Cleland (2009) found that very few medical students chose to disclose their own disabilities to the medical schools they attend, and many attributed this to their concerns that disclosing their disabilities would impact their study of medicine negatively. This negative self-perception regarding the presence of one's own disability and the perceived ramifications of disclosure in a medical school setting brings into question not only the effect such stigma may have on medical students' learning and training, but also the potential impact on students' development of attitudes toward other patients with ID or other disabilities throughout their training. Furthermore, the presence of negative attitudes and stigma toward those with disabilities in the medical training setting may have a negative influence on the development of medical students' clinical decision-making skills when working with patients with ID. For example, Dovidio and Fiske (2012) demonstrated that patients who were perceived as being warm in their personalities but of low competence were more likely to be over-recommended for institutionalized care and less likely to receive emotional support. Therefore, such biases have been found to impact the quality and appropriateness of care patients from special populations, such as those with ID, may receive from their healthcare providers.

A number of variables have been found to contribute to the attitudes healthcare professionals and students hold toward patients with disabilities. For example, Sahin and Akyol (2010) found that gender, contact with disabled persons, the closeness of such contact, and prior background in interacting with people with disabilities moderately

impacted the attitudes of nursing and medical students. Students who reported having more contact with individuals with disabilities regarded patients with ID as more valuable and were more likely to reject notions of pity toward disabled persons (Sahin & Akyol, 2010). Additionally, female students tended to hold more positive attitudes toward patients with disabilities than did male students (Sahin & Akyol, 2010). Other studies have reported similar findings regarding the impact of gender on attitudes toward patients with disabilities; however, this finding has not been consistent. For example, Tervo, Azuma, Palmer, and Redinius (2002) found that female medical students scored more favorably on attitudes measures, such as the Attitudes toward Disabled Persons Scale (ATDP; Yuker, Block, & Younng, 1970) and the Scale of Attitudes toward Disabled Persons (SADP; Antonak, 1982, Antonak, 1985, Antonak & Livneh, 1988), whereas Tervo, Palmer, and Radinius (2004) reported no differences between genders on the same measures of attitudes toward patients with disabilities. Although previous studies such as these have examined healthcare providers' attitudes toward patients with disabilities and factors that influence physicians' attitudes, little is known about the impact of these attitudes on the care patients with disabilities receive.

Level of comfort. Prior experiences were found to be relevant to the level of comfort physicians-in-training express in treating patients with disabilities, such that medical students have indicated having greater comfort in addressing challenging rehabilitation situations when they reported having a background in working with individuals with disabilities in the past (Tervo et al., 2002). Further, Tervo et al. (2004) found that students' years of experience and the number of hours they worked per week with disabled patients were predictive of greater comfort in managing challenging

rehabilitation situations with patients with disabilities. Nevertheless, medical students have also reported feeling less comfortable addressing sexual health and depression with disabled patients (Tervo et al., 2002). Sexual health and depression represent psychosocial factors within healthcare that may be subject to stigma and lack of awareness resulting from stereotyped beliefs about the lifestyles of individuals with ID. This notion speaks to the goals of the social constructionist model of disability in destigmatizing the health behaviors and needs of individuals with disabilities.

In examining physicians' levels of comfort in treating patients with physical and cognitive disabilities, general practitioners were found to be more uncomfortable with patients with cognitive disabilities, as opposed to those with physical disabilities (Aulagnier et al., 2005). Reasons for this discomfort included having had communication problems with this patient population in the past, not belonging to a professional network, lacking assistance during consultation, and lacking time for consultation with disabled patients (Aulagnier et al., 2005). If faced with such discomfort, it is possible that physicians may rely on support persons or caregivers for information about patients with ID, as opposed to working with the patients more directly. In a study examining the concerns of general practitioners and caregivers of individuals with disabilities, physicians expressed apprehension in assessing and managing patients with cognitive disabilities and tended to rely on support persons or caregivers for information (Iacono, Davis, Humphreys, & Chandler, 2003).

Concerns of patients with ID. The direct opinions and concerns of patients with ID regarding their healthcare are less commonly sought compared to information that is gathered from caregivers. In interviewing physicians and female patients with ID,

Wilkinson and colleagues (2013) reported that female patients with ID expressed frustration with regard to how little time they spent with their physicians and the desire that physicians would speak directly to them as opposed to their caregivers or support staff. In contrast, the physicians who were interviewed expressed frustration for the longer length of time visits with patients with ID may require, as well as the preference to communicate with the caregivers or support staff as opposed to patients (Wilkinson, Dreyfus, Bowen, & Bokhour, 2013). This contrast in needs and preferences between patients with ID and physicians may lend insight into physician biases and assumptions regarding patients with ID, as well as underlying negative attitudes toward treating members of this patient population. As such, enhancing the education and training of medical students and healthcare providers in effectively providing healthcare services to this population may be necessary.

Concerns of caregivers. Depending on a patient's level of need or severity of disability, it may be reasonable or even necessary for a physician to rely on support persons to provide health information about the patient with ID; however, support persons have reported concerns in regard to physicians' knowledge, relevant family stressors in caring for patients, and patients' access to services (Iacono et al., 2003). Additionally, patients with ID and their caregivers express healthcare-related concerns characterized by fear, anxiety, communication problems, behavioral issues, the logistics of being in a hospital, the role of the caregiver in the visit, and the perception of disability discrimination (Gibbs et al., 2008). In turn, L. P. Lin and colleagues (2011) examined caregivers' attitudes toward gynecological health for women with ID. Findings indicated greater satisfaction in the gynecological care provided when caregivers had more

knowledge of women's health, which suggests the importance of providing relevant health education to the caregivers of individuals with ID in order to enhance healthcare for patients with ID (L. P. Lin, J. D. Lin, Chu, & Chen , 2011). This finding may further support the need for adequate communication between caregivers and physicians with regard to the health needs of patients with ID. Moreover, an important question remains as to whether physicians believe they are able to elicit the questions and concerns of patients with ID during such visits, as opposed to relying on communication with caregivers, as well as whether the patient is included in the communication between caregivers and physicians. Of additional noteworthy consideration is that there are multiple types of caregivers who may accompany a patient with ID to medical visit, ranging from loved ones who know the patient very well to staff members of agencies who may have met the patient with ID only recently. Therefore, concerns of caregivers may be influenced by the type of relationship and the closeness of the relationship they have with the patient. As a result, different types of caregivers may express different concerns or values that may influence caregiver satisfaction.

Education for Medical Students

Some research has indicated that physicians and physicians-in-training have believed that their training in providing healthcare to patients with disabilities has been limited. For example, a survey of general practitioners in Australia revealed a disparity between the importance physicians placed on addressing key healthcare issues with patients with disabilities and the extent to which they reported addressing the same issues with their patients in practice (Lennox, Diggens, & Ugoni, 1997). Interestingly, it was suggested that this survey may have increased awareness for the healthcare needs of

patients with ID, in that physicians indicated that they would plan to implement such practices in the future (Lennox et al., 1997). As such, this finding may further suggest the potential positive impact of education and awareness on the quality of care patients from this population may receive.

Education needs. In a survey of 196 medical students, over 93% believed more training in working with patients with ID was needed (Burge, Ouellette-Kuntz, Isaacs, & Lunsky, 2008). Canadian psychiatry residents reiterated this concern and reported there to be few opportunities to gain experience working with individuals with disabilities in their residency programs. Additionally, although it was reported that some didactic resources were accessible, fewer supervised clinical experiences were available (Lunsky & Bradley, 2001). In response to this need and expressed desire for training opportunities involving patients with disabilities, medical school programs and researchers have recently attempted to implement various training programs and seminars designed to prepare medical students to work with patients with disabilities. Training medical students to treat patients with ID effectively may be most impactful when both didactic and clinical opportunities are available and reviewed in order to build and maintain clinical skills. For example, following a brief didactic program for working with patients with disabilities, gains in knowledge that were present immediately following the program unfortunately did not persist at a 3-month follow-up (Moroz et al., 2010). This finding underscores the potential need to revisit and review the needs of special populations with whom physicians may not interact on a regular basis.

The value of experiential learning. A number of medical school programs utilize standardized patients (SPs) in order to expose medical students to patients with

various needs. The use of SPs to teach medical students about patients with disabilities offers opportunities for personal and professional growth through self-reflection, self-assessment, and perspective-taking (Quirk, 2006). This practice can also serve as a substitute for in-vivo learning experiences and teachable moments that medical students may otherwise be less likely to encounter during their rotations (Nagoshi, 2001). Although some medical school programs hire SPs who are asked to play roles of patients with disabilities, other programs hire individuals with disabilities to serve as SPs for their students (Long-Bellil et al., 2011). There are a number of considerations in hiring actors or individuals with actual disabilities. Some potential benefits of hiring nondisabled actors include that they may give medical school programs comfort in assuming that they may face fewer barriers with regard to transportation and encounter fewer health needs that may prevent them from participating in the learning experiences. In turn, it may also be seen as more difficult to recruit individuals with disabilities to participate as SPs and, therefore, actors without disabilities may be more readily available and accessible (Long-Bellil et al, 2011). In terms of the quality of students' experiences with the SPs, however, SPs with genuine disabilities are able to provide students with authentic interactions that may better prepare them for future encounters with this patient population (Long-Bellil et al., 2011). In contrast, nondisabled SPs who are asked to act as disabled patients may not demonstrate consistency across their performances, and their own assumptions about individuals with disabilities may lead to less accuracy in their performances (Long-Bellil et al., 2011).

Other studies have demonstrated the potential benefits of the involvement of individuals with disabilities in medical education. For example, a multimodal program

developed by Tracy and Iacono (2008) involving lecture, direct contact with individuals with disabilities serving as "tutors" for educating students about effective communication with this patient population, and a communication exercise resulted in significant increases in positive attitudes regarding interactions with individuals with disabilities, as indicated by pre- and post-program scores on the Interaction with Disabled Persons Scale (IDP), an explicit measure of attitudes. In particular, results suggested students experienced an increase in confidence in the ability to treat patients with physical and sensory disabilities, as well as greater awareness and enhanced insight into the communication difficulties this population faces in healthcare (Tracy & Iacono, 2008). Given the brevity of the program, which lasted for 3 hours, the researchers suggested that quality education and direct contact with disabled persons may have significant impacts on students' attitudes, even after only a short period of time (Tracy & Iacono, 2008).

Because the medical school academic curriculum is typically unable to accommodate additional coursework to train medical students to work with certain special patient populations, a number of seminars, workshops, and brief training programs have been offered. Much of these didactic experiences include components of both lecture as well as direct contact with either SP actors or actual patients with disabilities. Studies implementing this type of approach demonstrate significant improvements in attitudes among students as indicated by pre- and post-measures (Adler, Cregg, Duigan, Ilett, & Woodhouse, 2005; Morgan & K. Lo, 2013; Moroz et al., 2010; Tracy & Iacono, 2008). These types of studies relied upon self-reported attitudes measures (Adler et al., 2005), self-reported levels of comfort in working with patients

with ID (Tracy & Iacono, 2008), and observation of the students' interactions with patients (Saketkoo et al., 2004).

The general results of these programs have yielded promising results: Medical students report positive changes in their attitudes toward patients with disabilities and increases in their levels of confidence in providing care to these individuals. For example, after participating in a 3-hour workshop focusing on disability knowledge, skills, and awareness, medical students showed positive changes on disability advocacy measures and demonstrated better performance on components of etiquette and interpersonal skills in working with individuals with disabilities as compared to those who did not participate in the workshop (Saketkoo et al., 2004). Although gains were made, it may be important to note that the SP was portraying a person with a disability. Therefore, students did not experience direct contact with individuals with disabilities. Hence, it may be important to further evaluate whether students' skills were utilized successfully in subsequent clinical situations with actual patients with disabilities. Nevertheless, studies demonstrate that direct patient contact is not necessary in order to improve medical students' skills and attitudes in working with disabled patients. For example, implementing didactic learning components that emphasize caring for patients with ID has led to improvements in student competencies in this area (Saketkoo et al., 2004).

Criticisms of training seminars and workshops. Attending training seminars and workshops has been shown to increase positive attitudes and perceived competency levels among healthcare professionals and students in working with patients with ID (Adler et al., 2005; Morgan & K. Lo, 2013; Moroz et al., 2010). The development and

success of these didactic programs demonstrates the ability to train healthcare professionals and trainees to work effectively with patients with ID; however, replication and standardization of these studies is needed to assess whether such didactic learning opportunities can be integrated successfully into the typical medical school curriculum. Furthermore, the feasibility of implementing these programs across medical school curricula remains questionable.

Some research has also demonstrated that although educational experiences are important in increasing knowledge of ID among medical students, didactic learning is insufficient on its own to elicit positive changes in attitudes toward patients with ID. For example, Sinai, Strydom, and Hassiotis (2013) found that although relevant coursework in one medical school led to a greater knowledge and understanding of ID, the experience of the coursework did not result in any significant changes in attitudes toward patients with ID from the beginning to the end of the coursework. Although education and knowledge are necessary components in treating patients with ID, a wider array of experiences, such as direct contact with patients and individuals with ID, may be necessary in order to improve attitudes of healthcare professionals in training (Sinai, Strydom, & Hassiotis, 2013).

Impacts of Personal Experiences on Attitudes of Healthcare Professionals

According to intergroup contact theory, positive interactions with members of another group lead to decreased prejudices and increases in positive attitudes toward the out-group (Allport, 1954; Pettigrew, 1998). Research has shown that students who have direct contact with patients with disabilities or report having past experiences with members of this population often hold more positive attitudes toward working with

patients with disabilities (Stachura & Garven, 2007; Ten Klooster, Dannenberg, Taal, Burger, and Rasket, 2009). For example, in a survey of occupational therapy and physiotherapy students that examined the impact of curriculum-based versus non-curriculum-based experiences on attitudes toward people with disabilities, those with personal experiences, such as having disabled family members or experiencing informal social contact with people with disabilities, demonstrated more positive attitudes scores, as measured by Gething's (1992) Interaction with Disabled Persons Scale (as cited in Stachura & Garven, 2007). Although clinical experiences are important as training tools, work experience did not equate consistently to positive attitudes among students (Stachura & Garven, 2007). Having a personal experience with someone with a disability, such as a family member or friend, was found to be a relevant factor in determining attitudes (Ten Klooster et al., 2009). Given the indication for the development of attitudes through personal experiences, students may benefit from partaking in informal contact with individuals with disabilities beyond their clinical experiences (Ten Klooster et al., 2009).

Two critical components appear necessary in increasing the quality of care for patients with ID: education and experiences. Education and clinical as well as personal experiences have shown to have potentially positive impacts on healthcare providers' attitudes and levels of comfort in treating patients with ID. In addition to knowledge and attitudes, a third critical component of the quality of care patients with ID receive involves providers' clinical decision-making strategies when treating patients with ID. More information is needed in order to determine the extent to which biological, psychological, and social health factors are addressed with patients with ID as compared

to the extent to which these considerations would be addressed with patients who do not have cognitive deficits. The present study sought to examine the intersection of knowledge, attitudes, and behaviors, as demonstrated by clinical decision-making and the impact of these factors on the quality of care patients with ID receive.

In summary, previous research suggests that, among medical students and health professionals, prior experience with individuals who have ID relate to more positive attitudes toward this population. Didactics and structured training programs designed to enhance physicians' knowledge and understanding of the ID population have shown to correlate with increases in positive attitudes. As such, experience and knowledge appear to be critical components in improving attitudes toward this patient population. What is less understood, however, is how these attitudes may impact physicians' clinical decision-making when treating patients with ID, as well as the way in which attitudes may develop over the course of professional development as medical students, interns, residents, and attending physicians gain more knowledge and experience in clinical settings over time.

Chapter 3: Hypotheses

Hypothesis 1

It was hypothesized that there would be a significant interaction effect between level of training and level of ID severity, such that with regard to neurotypical patients, there would be no significant differences in attitudes, knowledge, and number of psychosocial concerns addressed across medical students, interns, residents, and attending physicians. In contrast, regarding patients with mild ID, attending physicians would have the most positive attitudes, more knowledge, and more psychosocial concerns addressed, followed by residents, interns, and medical students, respectively. Further, regarding patients with moderate ID, attending physicians would continue to hold the most positive attitudes, more knowledge, and more psychosocial concerns addressed, followed by residents, interns, and medical students; however, attitudes across these participant groups would be less positive toward patients with moderate ID as compared to the attitudes held toward patients with mild ID.

Hypothesis 2

It was hypothesized that more positive attitudes, as indicated by higher scores on the SADP, and greater knowledge, as indicated by higher scores on the knowledge measure, would be associated with a higher likelihood of addressing specific multiple psychosocial aspects during a primary care visit scenario with a patient with ID. In contrast, less positive attitudes, indicated by lower scores on the SADP, and less knowledge, as indicated by lower scores on the knowledge measure, would be associated with a reduced likelihood of addressing multiple psychosocial aspects during a visit with a patient with ID.

Hypothesis 3

Lastly, it was hypothesized that participants who reported having had more past educational, clinical, and personal experiences of greater perceived quality with individuals with ID would hold more positive attitudes toward patients with ID as measured by higher scores on the SADP and the reported likelihood of addressing psychosocial aspects during a visit with a patient with ID, such that a greater number of psychosocial concerns would be addressed. In contrast, a lower number of experiences of lesser perceived quality would relate to lower scores on the SADP and the reduced likelihood of addressing psychosocial aspects during a visit with a patient with ID, such that fewer psychosocial aspects would be addressed with the patient.

Chapter 4: Method

Design and Design Justification

To assess the attitudes of medical students, interns, residents, and attending physicians toward patients with ID, a cross-sectional, between-subjects, quantitative design was utilized in the form of an online survey. Cross-sectional data allowed attitudes to be measured as a function of each participant's status in terms of level of training. The data collected were compared between the groups of participants, with particular focus on the level of the participants ranging from third year of medical school to attending status.

Participants

The participants in this study were self-selected volunteers who agreed to participate in a Survey Monkey designed to assess attitudes, analogue clinical decision-making, and knowledge about intellectually disabled patients. A total of 378 medical students, interns, residents, and attending physicians were solicited with hopes to ultimately obtain a final sample of 113 participants. In total, 77 subjects completed the study. Ultimately, the participants were comprised of 17 medical students (22.1%), 31 interns and residents (40.3%), and 29 attending physicians (37.7%).

Participant demographics. Participants were asked to provide demographic information on the variables of age, race, gender, medical specialty, and level of training. Primary care specialties were specifically recruited for this study. As such, 49 participants selected their area of interest or specialty to be family medicine (63.6%), 21 selected internal medicine (27.3%), 4 participants selected pediatrics (5.2%), and 3 selected obstetrics/gynecology (3.9%). The participants ranged in ages from 24 to 68

years at the time of the study, and 43 were female (55.8%) and 34 were male (44.2%). The majority of the participants identified as White or Caucasian (n = 50; 64.9%). Twenty-one identified as Asian or Pacific Islander (27.2%), three identified as Indian (3.9%), two participants identified as Black/African-American (2.6%), and one identified as Latino/a (1.3%). Regarding the medical school programs in which participants are being or were trained, 50 reported being trained by doctor of osteopathic medicine (DO) programs (64.9%) and 27 reported being trained by medical doctor (MD) programs (35.1%). Demographics of the sample can be found in Table 1.

Inclusion criteria. In order to participate in this study, participants, regardless of age, race, gender, and medical specialty, had to be in good standing in medical schools, currently completing internships or residencies, or practicing as attending physicians. Participants were also required to identify either a particular interest or specialty in a primary care discipline, including family medicine, internal medicine, pediatrics, or obstetrics/gynecology in order to participate.

Exclusion criteria. Individuals who were currently completing the first two years of medical school and those who had not yet begun clinical rotations were excluded from participating in this study. Such exclusions were necessary to ensure that participants were able to adequately answer questions about their past and current experiences with patients in a clinical training environment. Because the study was limited to examining the knowledge, attitudes, and clinical decision-making behaviors of primary care physicians, individuals who were not interested, or had not specialized, in a primary care discipline were excluded from the study.

Table 1

Demographic Characteristics of the Sample

		Frequency	Percent
Sex	Male	34	44.2
	Female	42	54.5
	Other	1	1.3
Age	24 – 35 years old	49	63.6
	36 – 68 years old	28	36.4
Culture/Ethnicity	White/Caucasian	50	64.9
	Black/African American	2	2.6
	Asian/Pacific Islander	20	26.0
	Asian Indian	2	2.6
	Latino/a	1	1.3
	East Indian	1	1.3
	South Asian	1	1.3
Level of Training	Medical Student	17	22.1
	Intern	8	10.4
	Resident	23	29.9
	Attending Physician	29	37.7
Degree Type	MD	27	35.1
	DO	50	64.9
Specialty	Family Medicine	49	63.6
	Internal Medicine	21	27.3
	Obstetrics/Gynecology	3	3.9
	Pediatrics	4	5.2

Recruitment. Participants were recruited by the distribution of the survey link through social media platforms, such as Facebook, Twitter, and LinkedIn; online forums for medical students such as the Student Doctor Network, StudentDoc, and PCOM Groups; and mailing lists through local medical society chapters and hospital networks. A chance to win one of four $100 Amazon gift cards was offered in the form of a raffle in exchange for the completion of the online survey.

Measures

Clinical vignettes. A clinical vignette in which the patient was randomly classified as nondisabled, mild ID, or moderate ID was provided to participants (Appendix A). The age of the patient in the vignette was reported as 21 years old, which allowed for primary care specialties recruited for this study to include pediatrics. The vignette included standard health information for a routine check-up, with the presence and level of ID being the only variable altered within the chart. Following the review of the chart, participants completed an investigator-designed 6-point Likert-type questionnaire regarding the likelihood of addressing different areas of health with the patient from the vignette (Appendix B). These areas of health were divided into psychological, social, and biological health concerns (Table 2), in which participants were asked to rate the likelihood that they would address these different areas with the patient whose information was provided. Items included as areas of health were those that a physician may expect to address, which were reviewed by a physician experienced in providing primary care treatment to patients with ID. To avoid potential biasing or sensitization, all participants completed the case vignette questionnaire prior to completing other measures.

Scale of Attitudes toward Disabled Persons (SADP). Despite its popularity and the frequent use of the Attitudes toward Disabled Persons scale (ATDP; Yuker et al., 1970) in measuring medical students' attitudes toward disability, it has been proposed that the scale may be outdated (Tervo et al., 2002). In addition, social desirability may be of concern in obtaining accurate information from participants regarding their attitudes. Given the psychometric concerns for the ATDP (Livneh, 1982), other measures of attitudes toward individuals with disabilities have been developed. Formatted similarly to the ATDP-Form A, the SADP, developed by Antonak (1982), has been deemed as a more contemporary measurement of attitudes toward disability (Ten Klooster et al., 2009). Similar to the ATDP-Form A, the SADP is a 24-item Likert-type scale that yields one score that takes into account three factors relating to disability attitudes: optimism-human rights, behavioral misconceptions, and pessimism/hopelessness. The SADP has been shown to have good validity and reliability, with Cronbach's alpha achieving a range from 0.88 to 0.91 (Ten Klooster et al., 2009). Further, the construct validity of the SADP was established by demonstrating a moderate correlation with the ATDP scale-Form O (Antonak, 1982). In addition, correlation analyses have suggested that the SADP has good construct validity, reporting homogeneity and internal consistency across the 24 items of the scale (Antonak, 1982). A total score is calculated such that a higher score is indicative of more positive attitudes toward disabled persons (Antonak, 1982).

Knowledge measure. A 16-item multiple choice questionnaire was designed by the investigator to assess general knowledge about ID (Appendix C). These items were selected to provide information about each participant's level of understanding about individuals with ID. Items were informed by research (APA, 2013; de Winter et al.,

2004; Schieve et al., 2011; Zeldin & Bazzano, 2016). Two experts in this subject area were consulted to evaluate items to ensure that they adequately represent the reasonable level of knowledge healthcare providers can expect to draw upon when treating patients with ID.

Demographics survey. Following the completion of the clinical decision-making, attitudes, and knowledge measures, participants were asked to respond to a demographics survey that sought information about the participants' backgrounds with regard to race, gender, medical specialty, type of medical degree program, level of medical training, past experiences with individuals with disabilities, and the quality of those past experiences (Appendix D). This questionnaire included items that investigated the quality, quantity, and nature of contact the participants have had with individuals with ID, as well as the quality and amount of clinical training and didactic learning the participant had received in working with patients with ID. The quality of interaction was not operationalized and was, therefore, based upon the participants' perceptions of their previous experiences.

Procedure

Those who accessed the aforementioned survey link were invited to participate in a study related to patients with ID. The solicitation included a brief description of the survey and informed the individuals that this survey was anonymous, completely voluntary, and that anyone may withdraw from the study at any time without consequence. Further, potential participants were informed that participation would help the investigators to more fully understand provision of medical services to the ID population. They were also informed that by completing the survey, they may discover

things about themselves of which they were previously unaware, which may cause minimal discomfort in some individuals, but that there were no other known risks to participating.

Those who clicked on the link were informed once again about the terms and conditions of participation and consent to participate. Those who agreed to participate were asked to complete screening questions related to the inclusion and exclusion criteria. As such, participants were asked to report their level of medical training. Those who were not medical interns, residents, or attending physicians at the time of accessing the survey were redirected a screen that displayed a statement of thanks and an explanation of their ineligibility to complete the survey. Individuals who met the inclusion and exclusion criteria were invited to enter the survey through Survey Monkey. Participants were then randomly assigned to view one of three clinical vignettes describing a patient as having either mild ID, moderate ID, or as being neurotypical. After reviewing the vignette, the participants were asked to rate the importance of addressing different biological, psychological, and social aspects of health with the patient from the vignette on a 5-point, investigator-designed Likert-type scale.

Following the completion of the clinical vignette and accompanying survey, participants were asked to complete the SADP. Following the SADP, participants were asked to complete a brief, 16-item knowledge measure regarding ID.

Upon completion of the clinical vignette, the accompanying investigator-designed survey, the SADP, and the knowledge measure, participants were directed to a short series of questions regarding race, gender, level of medical training, specialty, and the quality and quantity of past clinical and personal experiences relevant to interacting with

individuals with ID. Participants were then given the option to enter a raffle for the chance to win a $100 Amazon gift card by sending an e-mail to the investigators notifying them of their completion of the survey and request to enter the raffle. This separate e-mailing process was utilized to ensure anonymity, such that any identifying e-mail information from those participating in the lottery was kept separate from the data.

Chapter 5: Results

Initially, a two-factor multivariate analysis of variance (MANOVA) was utilized to assess physicians' knowledge of and attitudes toward patients with ID, as well as their clinical behaviors in addressing different biological, psychological, and social concerns with patients based upon their level of professional training and the severity of the patients' ID diagnoses. Independent variables included the participant's level of medical training defined by one of three levels (i.e., medical student, intern/resident, attending physician) and the level of the patient's ID diagnosis by one of three levels (i.e., neurotypical, mild ID severity, moderate ID severity). The dependent variables included scores on the knowledge measure and SADP, and responses obtained from the clinical vignette (areas of the visit addressed; see Table 2). Scores for clinical decision-making were obtained through the sums of the likelihood of addressing the separate biological, psychological, and social concerns with the patient based on 5-point Likert-type scale ratings across these three domains (e.g., biological, psychological, and social aspects of the visit). Tables 3, 4, 5, and 6 illustrate descriptive statistics regarding participants' responses to measures.

Table 2

Areas of the Visit Addressed

Biological	Psychological	Social
Diet	Anxiety	Social support
Exercise	Depression	Sexual health
Adherence to medication	Mood	Activities of Daily Living
Smoking/nicotine	Suicide risk	
Physical examination	Drug/alcohol use	
Height	Sleep habits	
Weight		

Table 3

Descriptive Statistics for Total Measure Scores by Participant Group

	Level	Mean	Std. Deviation	N
Clinical Decision-Making (Areas of the Visit)	Medical Student	3.8314	.57933	17
	Intern/Resident	3.7161	.67043	31
	Attending Physician	3.3655	.69502	29
	Total	3.6095	.68148	77
SADP	Medical Student	4.5000	.74273	17
	Intern/Resident	4.4032	.69957	31
	Attending Physician	4.7557	.54346	29
	Total	4.5574	.66602	77
Knowledge	Medical Student	11.7647	2.16591	17
	Intern/Resident	11.3226	2.37188	31
	Attending Physician	11.3448	1.58736	29
	Total	11.4286	2.04186	77

Table 4

Descriptive Participant Information

Questions	Response	Frequency	Percent
In what ways do you know a person or persons with an intellectual disability? (check all that apply)	My child	1	1.3
	My sibling	2	2.6
	Other relative	22	28.6
	My client/patient/student	45	58.4
	My co-worker	1	1.3
	My employee	2	2.6
	My neighbor	5	6.5
	My friend	10	13.0
	Not applicable	15	19.5
	Other – Godson	1	1.3
	Other – worked as caregiver	1	1.3
	Other – patient	1	1.3
	Other – spouse special ed. teacher	1	1.3
Rate the amount of interaction you have had with patients with intellectual disability during your medical training:	1 – very little	11	14.3
	2	18	23.4
	3	27	35.1
	4	9	11.7
	5	7	9.1
	6 – a great deal	4	5.2
	N/A – no such interaction	1	1.3
Rate the quality of your Interaction with patients with Intellectual disability during your medical training:	1 – very poor	7	9.1
	2	10	13.0
	3	23	29.9
	4	16	20.8
	5	15	19.5
	6 – excellent	2	2.6
	N/A – no such interaction	4	5.2
Rate the amount of interaction you have had with individuals with intellectual disability in your personal life:	1 – very little	14	18.2
	2	22	28.6
	3	13	16.9
	4	15	19.5
	5	6	7.8
	6 – a great deal	6	7.8
	N/A – no such interaction	1	1.3
Rate the quality of your interactions with individuals with intellectual disability in your personal life:	1 – very poor	7	9.1
	2	10	13.0
	3	16	20.8
	4	19	24.7
	5	11	14.3
	6 – excellent	8	10.4
	N/A – no such interaction	6	7.8

Table 5

Descriptive Statistics of the Clinical Decision-Making Measure Items

Item	Valid	Frequency	Percent
Diet	A little important	10	13.0
	A good deal important	30	39.0
	A great deal important	23	29.9
	Extremely important	14	18.2
Exercise	Not at all important	1	1.3
	A little important	7	9.1
	A good deal important	30	39.0
	A great deal important	24	31.2
	Extremely important	15	19.5
Medication Adherence	Not at all important	7	9.1
	A little important	11	14.3
	A good deal important	17	22.1
	A great deal important	23	29.9
	Extremely important	19	24.7
Social Support	Not at all important	2	2.6
	A little important	3	3.9
	A good deal important	19	24.7
	A great deal important	29	37.7
	Extremely important	24	31.2
Sexual Health	A little important	10	13
	A good deal important	23	29.9
	A great deal important	22	28.6
	Extremely important	22	28.6
Anxiety	Not at all important	2	2.6
	A little important	8	10.4
	A good deal important	25	32.5
	A great deal important	30	39.0
	Extremely important	12	15.6

Depression	Not at all important	2	2.6
	A little important	7	9.1
	A good deal important	26	33.8
	A great deal important	27	35.1
	Extremely important	15	19.5
Alcohol Use	A little important	10	13.0
	A good deal important	23	29.9
	A great deal important	29	37.7
	Extremely important	15	19.5
Drug Use	A little important	7	9.1
	A good deal important	26	33.8
	A great deal important	26	33.8
	Extremely important	18	23.4
Smoking/Nicotine	Not at all important	1	1.3
	A little important	6	7.8
	A good deal important	24	31.2
	A great deal important	27	35.1
	Extremely important	19	24.7
Physical Exam	A little important	10	13.0
	A good deal important	20	26.0
	A great deal important	18	23.4
	Extremely important	29	37.7
Activities of Daily Living	Not at all important	8	10.4
	A little important	6	7.8
	A good deal important	23	29.9
	A great deal important	20	26.0
	Extremely important	20	26.0
Suicide Risk	Not at all important	1	1.3
	A little important	9	11.7
	A good deal important	22	28.6
	A great deal important	26	33.8
	Extremely important	19	24.7
Height and Weight	Not at all important	4	5.2
	A little important	10	13.0
	A good deal important	32	41.6
	A great deal important	20	26.0
	Extremely important	11	14.3

Sleep Habits	Not at all important	1	1.3
	A little important	8	10.4
	A good deal important	39	50.6
	A great deal important	22	28.6
	Extremely important	7	9.1
Likelihood that you will speak to a family member or caregiver for additional information about the patient:	Not at all likely	16	20.8
	A little likely	12	15.6
	A good deal likely	14	18.2
	A great deal likely	14	18.2
	Extremely likely	21	27.3
Your interest in caring for this patient:	Not at all interested	1	1.3
	A little interested	4	5.2
	A good deal interested	23	29.9
	A great deal interested	28	36.4
	Extremely interested	21	27.3
Your confidence in treating this patient effectively:	Not at all confident	1	1.3
	A little confident	4	5.2
	A good deal confident	23	29.9
	A great deal confident	28	36.4
	Extremely confident	21	27.3
Was your patient…	Male	47	61.0
	Female	30	39.0

Table 6

Descriptive Statistics of the Knowledge Measure Items

Item	Valid	Frequency	Percent
The most accurate term for an individual who was diagnosed with what was formerly known as mental retardation is:	Cognitive Disability	3	3.9
	Learning Disability	4	5.2
	Intellectual Disability	68	88.3
	Mental Disability	2	2.6
Increases in challenging behaviors may be evident if a patient with ID is experiencing which of the following?	c. Both a and b	75	97.4
	d. Neither a nor b	2	2.6
People with intellectual disabilities Receive this diagnosis based on:	a. Inability to communicate with other people	1	1.3
	b. Deficits in intellectual functioning and adaptive functioning	67	87.0
	c. Deficits in Activities of Daily Living and social skills	7	9.1
	d. Deficits in emotion regulation and learning	2	2.6
For a diagnosis, the onset of intellectual disability occurs…	a. During the developmental period	28	36.4
	b. At any time in a person's life	29	37.7
	c. Before the age of 6	15	19.5
	d. None of these are true	5	6.5
Which of the following neurological concerns are more prevalent among the ID population than the general population?	a. Seizures	36	46.8
	b. Stroke	3	3.9
	c. Both a and b	29	37.7
	d. Neither a nor b	9	11.7

An intellectual disability is categorized as a…	a. Neurological disease	6	7.8
	b. Mental illness	5	6.5
	c. Learning disability	10	13.0
	d. Neurodevelopmental disorder	56	72.7
Individuals with ID are more likely than nondisabled individuals to encounter which of the following condition(s)?	a. Respiratory problems	15	19.5
	b. Drug addiction	16	20.8
	c. Cancer	6	7.8
	d. All of the above	40	51.9
The classifications for intellectual disability are…	a. Mild, Moderate, and Severe	18	23.4
	b. Mild, Moderate, Severe and Profound	41	53.2
	c. High Functioning and Low Functioning	13	16.9
	d. Category 1, Category 2, Category 3, and Category 4	5	6.5
Which of the following should be addressed in an annual visit for a patient with ID?	a. Pharmacotherapy	1	1.3
	b. Counseling	1	1.3
	c. Behavior Management	2	2.6
	d. All of the above	73	94.8
Intellectual functioning includes…	a. Judgment	1	1.3
	b. Academic learning	2	2.6
	c. Abstract thinking	1	1.3
	d. All of the above	73	94.8
Adaptive functioning incudes…	b. Social participation	1	1.3
	c. Independent living	1	1.3
	d. All of the above	75	97.4
Individuals with ID are more likely than nondisabled individuals to encounter which condition(s)?	a. Anxiety	16	20.8
	b. Gastrointestinal issues	2	2.6
	c. Both a and b	53	68.8
	d. Neither a nor b	6	7.8

According to DSM-5, the following criteria must be met in order to diagnose intellectual disability:	a. Deficits in intellectual functioning	9	11.7
	b. Deficits in adaptive functioning	1	1.3
	c. Onset during the developmental period	2	2.6
	d. All of the above	65	84.4
A child who presents with developmental delays is eligible for early intervention services between the ages of…	a. Birth to five years	49	63.6
	b. Birth to three years	14	18.2
	c. Three to five years	10	13.0
	d. None of the above	4	5.2
A patient with ID who is experiencing pain may potentially exhibit which of the following?	a. Aggression	3	3.9
	b. Rocking	1	1.3
	c. Grimacing	1	1.3
	d. All of the above	72	93.5
Which of the following is a known major contributing factor for disease in the ID population?	a. Smoking	6	7.8
	b. Obesity	51	66.2
	c. Sexual activity	3	3.9
	d. Alcohol abuse	17	22.1

To further explore areas that approached significance, exploratory analysis was conducted using analysis of variance (ANOVA) to determine upon which variables such differences existed. Subsequent investigative Tukey post hoc analyses were conducted when differences between the levels of the independent variable were observed. To address Hypotheses 2 and 3, Pearson correlational analyses were computed to examine the relationship between knowledge and attitudes on the likelihood of addressing psychosocial areas of the visit, and the relationship between perceived quality and quantity of experiences with the ID population on attitudes and the likelihood of addressing psychosocial areas of the visit. Further mining of the data within the correlational analyses was completed to highlight other noteworthy findings.

Analysis of Hypotheses

Hypothesis 1. The first hypothesis proposed that an interaction effect with regard to participants' level of training at three levels (medical students, interns/residents, and attending physicians) and patients' severity level of ID at three levels (mild ID, moderate ID, and neurotypical) would be revealed. A 3 x 3 MANOVA revealed there to be no significant interaction between participants' level of training and patients' level of ID severity when considering scores on knowledge, attitude, and clinical decision-making measures (Pillai's Trace, $p = .057$, $F = 2.096$; Wilk's $\lambda = .843$, $p = .053$, $F = 2.137$). These findings revealed that level of training and level of ID severity did not interact and further analysis was not technically justified; however, given that this finding was approaching significance, further exploration of the data was conducted. A subsequent ANOVA revealed a significant difference in total average scores on the clinical decision-making measure between the groups ($F(2, 3.332)$, $p = .041$). A Tukey post hoc analysis was then conducted to determine where differences existed across the groups within the areas of the visit, through which differences in responses of medical students (level 1) as compared those of attending physicians (level 3) approached but did not achieve significance ($p = .061$).

Hypothesis 2. The second hypothesis proposed that higher scores on the SADP and knowledge measures would be associated with an increased likelihood of addressing more areas of the visit with patients with mild and moderate ID. No significant correlations were revealed between the number of areas of the visit being addressed and the scores on either the SADP ($r = -.001$, $p = .496$) or the knowledge measure ($r = -.109$, $p = .173$). Overall, a significant correlation was found between scores on the knowledge

and SADP measures (r = .196, p = .044), revealing that approximately 3.8% of the variability on the SADP was attributable to differences in knowledge scores.

Hypothesis 3. The third hypothesis purported that having had more experiences of greater perceived quality with the ID population would be associated with higher scores on the SADP and a greater rating of importance for areas of the visit to be addressed. As such, Pearson correlational analyses were conducted to assess the relationship between the reported quantity and quality of personal, educational, and clinical experiences with individuals with ID and the obtained scores on the SADP. The quantity of reported clinical interactions with the ID population was not found to correlate with more positive scores on the SADP (r = .107, p = .177) or scores on the knowledge measure (r = -.094, p = .208). Similarly, the quantity of reported personal experiences with the ID population did not correlate significantly with scores on the SADP (r = .056, p = .315) or scores on the knowledge measure (r = .109, p = .174). Conversely, the perceived quality of personal interactions with the ID population was found to correlate with the SADP, such that the rating of perceived higher quality personal interactions with ID individuals was found to be associated with more positive attitudes based on scores on the SADP (r = .226, p = .024). The coefficient of determination revealed that the quality of interactions accounted for approximately 5.1% of the variability on the SADP. In turn, however, the correlation between the perceived quality of clinical experiences and scores on the SADP was not significant (r = .159, p = .083). No significant correlations were identified between the number of psychosocial areas of the visit identified as likely to be addressed and the quality (r = .170, p = .135) or quantity (r = .015, p = .462) of personal life interactions, or the quality (r = .125, p =

.210) or quantity (r = .025, p = .436) of medical training experiences with the ID population. Regarding the specific psychosocial areas of the visit to be addressed from the clinical vignette, a modest correlation was noted between the quality of interaction with the ID population during medical training and the likelihood of addressing sexual health during the primary care visit (r = .265, p = .041) with a coefficient of determination equal to 7%.

Additional Findings

Further exploration of the existing findings was conducted to mine the data and determine any additional areas of significance within the existing data set, which revealed two areas of statistical significance between groups. Caution is urged in interpretation of these findings since these analyses were post hoc in nature and not predicted beforehand. A one-way MANOVA was conducted with the level of physician training as the independent variable and three dependent variables: likelihood of asking for additional information from a caregiver, interest in treating the patient, and confidence in treating the patient. A significant multivariate effect was revealed (p = .007). The tests of between subjects effects revealed a significant F-test on the variable of likelihood of asking a caregiver for additional information, such that $F(3,73) = 3.967$, which was significant (p = .011). A post hoc Tukey analysis further revealed that there was a significant difference between interns and attending physicians (p = .026) on this variable, such that medical interns (M = 4.125) were significantly more likely to ask family members or caregivers for additional information as compared to attending physicians (M = 2.483). Further analysis of the data revealed a modest but significant correlation was noted between the participants' interest in caring for the patient with ID

and the likelihood of seeking additional information from a caregiver (r = .308, p = .003), with a coefficient of determination equaling 9.4%.

Additional correlations were explored further to determine whether other relationships were present between variables within the data set. This exploration revealed the amount of interactions participants had with the ID population in their personal lives correlated significantly with the extent they believed ID was addressed within their medical school courses (r = .393, p = .004), with a coefficient of determination equal to 15.4%. In turn, the extent to which participants reported that ID was addressed in the medical school curriculum and the amount of interactions participants reported having with patients with ID in their medical training approached, but did not achieve significance (r = .250, p = .051), with a coefficient determination equaling 6.3%. In contrast, the quality of interactions in participants' personal lives correlated significantly and positively with the quality of their interactions with ID individuals during their medical training (r = .613, p = .000), with a coefficient of determination equaling 37.6%. Another significant, positive correlation was noted between participants' reported amounts of interaction with ID individuals in their personal lives and the amount of interactions with ID individuals in their medical training (r = .405, p = .003). The reported quantity of interactions with patients with ID in participants' personal lives accounted for about 16.4% of the variability in amount of interactions with ID individuals in their medical training. Furthermore, the quality and quantity of interactions with the ID population within medical training experiences revealed a modest but significant correlation (r = .415, p = .003), with a coefficient of determination equal to 17.2%.

Given that there were 12 additional correlations computed during data mining, a Bonferroni correction was calculated and revealed a new, more stringent level of significance of .004. All of the reported significant correlations above achieved the more stringent criteria of significance.

Chapter 6: Discussion

This study sought to identify relationships between attitudes, knowledge, and clinical decision-making strategies of physicians, physicians-in-training, and medical students in providing care to the adult ID population. It was the intention of this study to identify and raise awareness of potential gaps in the education of medical professionals with regard to providing quality healthcare to patients with ID and, if such gaps were found, to spark conversation regarding ways to better prepare physicians to treat patients with ID. If all hypotheses had been accepted, it would have been suggested that physicians and physicians-in-training who have more educational, clinical, and personal experiences with individuals with ID demonstrate more positive attitudes, greater knowledge, and closer attention paid to biological, psychological, and social concerns related to the patients' health in office visits. Such findings would have suggested that physicians' attitudes, knowledge, and clinical decision-making in treating patients with ID improve over the course of their professional careers. The lack of significance across many of these findings may point to a more promising outlook on the development of positive attitudes and effective training practices, demonstrating that healthcare providers are prepared to provide higher quality care to patients with ID than that which had been hypothesized.

Despite not rejecting some of the null hypotheses, valuable conclusions may be drawn from this information, and the results may suggest that medical education is situated in providing better preparation in caring for patients with ID than that which had been speculated. This assumption had been delineated from the current literature, as well as the awareness that medical schools are typically unable to allot time and resources to

teach specific ways to provide quality care to the ID population within the rigorous medical school curriculum. The findings of this study join the conversation within literature exploring factors that influence physician attitudes and the impact of these attitudes when treating patients with ID. As such, this study provides support to some of the findings by Sahin and Akyol (2010), which found that previous interactions and the closeness of contact with disabled persons moderately influenced medical and nursing students' attitudes toward the disabled population.

Results of the present study revealed that only 3.8% of the variability on the attitudes measure was found to be due to differences in the knowledge measure. The development of knowledge as a means to providing effective and appropriate treatment to different patient populations is an integral component of medical school and medical training. Although knowledge is necessary, the findings of this study suggest that the acquisition of knowledge during a physician's training does not strongly influence attitudes held toward the ID population. If the acquisition of knowledge of this population does not influence attitudes significantly, two questions are relevant: first, is a positive attitude toward the ID population necessary in order to provide effective and high-quality care, and second, if knowledge is not a significant factor in the development of attitudes toward the ID population, what variables, other than direct experiences, ought to be examined?

Empathy

Hojat et al. (2009) found that empathy among medical students declined by the third year of medical school, in conjunction with the time in which students begin spending more time engaged in direct care. Data mining revealed that medical interns

were significantly more likely than attending physicians to seek additional information from caregivers of patients with ID. All participants of this study had at least completed some of their third-year of medical school training. If empathy decreases over the course of training (Hojat et al., 2009), further exploration of the possible interaction between the role of empathy and the position of attitudes toward the ID population among physicians and physicians-in-training may be worthwhile in future research. The empathy-attitude effect, which was explored by Batson et al. (1997), attempted to understand whether empathy toward a member of a highly stigmatized group would result in generalized empathy toward the group overall and lead to a shift to more positive attitudes. Inducing empathy toward a member of a stigmatized group led to positive changes in attitudes toward the member's group. Interestingly, Batson et al. further suggested that empathy addresses the emotional components of an attitude, separate from the role of inference obtained through information. The present study supports this notion based on the finding that participants' level of knowledge about the ID population did not relate to their attitudes toward this population, whereas the perceived quality of their interactions with members of the ID population did influence attitudes.

Quality versus Quantity of Interactions

Although knowledge was not found to relate to attitudes, the perceived quality of interactions with members of the ID population correlated with positive attitudes. In contrast, the number of reported interactions with members of the ID population was unrelated. Further, a significant relationship was found between personal and professional experiences in terms of both the quality and the quantity of those

experiences. It is possible to suggest that those with more personal experiences may be more comfortable and, therefore, may be more likely to treat patients with ID. Additionally, it is possible that those with prior experiences with the ID population are in some way primed to attend to additional experiences with the ID population during their training. The influence of perceived quality of experiences may speak in part to the work by Batson et al. (1997), in which higher quality experiences may induce more empathy and lead subsequently to the development of more positive attitudes toward the ID population. Additionally, given that quality, not quantity, of experiences correlated with attitudes, it is possible that the implementation of training experiences for medical students may be more feasible without extreme disruption to the rigorous medical school curriculum. Similar to the findings by Tracy and Iacono (2008), it may be possible that trainings designed to provide physicians and physicians-in-training with brief but direct, high-quality experiences with the ID population may have a significant impact on the development of positive attitudes toward this patient population.

Intergroup Contact Theory

Intergroup contact theory suggests that prejudice can be reduced when interactions between groups involve four necessary conditions: equal status, common goals, intergroup cooperation, and the support of authorities, law, or customs (Allport, 1954; Pettigrew, 1998). The significant correlation between the attitudes measure and the reported quality of interactions with the ID population did not extend to the reported quantity of interactions. Hence, the amount of experience an individual reports having had with members of the ID population is unrelated to more positive attitudes if those interactions are not perceived as being valuable. The relationship between higher quality

interactions and more positive attitudes speaks to the intergroup cooperation aspect within Allport's (1954) theory, which suggests that cooperation between groups contributes to the development of positive attitudes. Therefore, if a cooperative experience between a physician or medical student and a member of the ID population was perceived to be valuable or worthwhile, the adoption of more positive attitudes toward ID individuals could be gained.

Although the classroom setting equips medical students with the knowledge necessary to properly diagnose and treat conditions, the knowledge acquired and subsequent accuracy with which a physician may provide appropriate care to a patient with ID does not necessarily encompass patient satisfaction. Therefore, various medical schools have successfully implemented programs in which individuals with ID have been hired as SPs for training purposes (Long-Bellil et al., 2011), such that students are able to gain experience with individuals with ID in clinical educational settings, simultaneously increasing knowledge while potentially enhancing positive attitudes toward patients with ID through positive and cooperative interactions. Research of medical schools' use of this training model found that the experiences were reported to be generally positive (Long-Bellil et al., 2011). Such positive interactions—namely, those interactions that are perceived as being valuable—may enhance attitudes toward this patient population. More specifically tied to Allport's (1954) intergroup contact theory, the use of SPs with disabilities in medical training programs allows for intergroup cooperation and common goals, representing two of the four essential pillars of developing positive attitudes between two distinct groups, such that SPs and medical students are working on a task (e.g., a mock patient visit) in which they work toward common educational goals and, in

order to achieve this goal, must engage in mutual cooperation. In medical practice, this cooperative dynamic may be extended to interactions with caregiver as well.

Collaboration with caregivers. Based on data mining and the associated caveat in interpretation, the present study found that medical interns were significantly more likely than attending physicians to solicit additional information from caregivers of patients with ID. Although some medical school programs may encourage physicians-in-training to take a holistic approach to their treatment of patients with ID by including caregivers in medical visits, it may also be beneficial to ensure that this increased likelihood for soliciting additional information found within this study is not born out of a lack of confidence in their ability to treat patients with ID effectively. Additionally, although this finding can be interpreted to suggest that physicians-in-training may be more likely to ask for caregivers' perspectives based on their lack of medical experience, it is arguable that this could be seen as an asset rather than a shortcoming or reflection of their lack of experience. For example, Wilkinson et al. (2013) interviewed patients with ID and their caregivers on experiences with doctors and found that many were concerned that their physicians did not spend enough time with them to address their concerns. The likelihood of asking for additional information from a caregiver may, therefore, enhance the physician's rapport with the patient and lead to increased patient satisfaction and quality of care. On the other hand, patients with ID have also expressed concern for situations in which a physician indicates the preference to speak with a caregiver rather than the patient (Wilkinson et al., 2013), suggesting there is a potentially delicate balance to be struck when gathering relevant health information. In finding this balance, studies have suggested that medical students believe that they are not exposed to disability within

their training or curricula enough to feel prepared to provide adequate care to this population (Burge et al., 2008). Feeling unprepared to provide adequate care to patients with ID may result in physicians choosing to rely more heavily on caregivers to provide health information regarding patients with ID. Interestingly, no significant differences were found in the participants' confidence in treating individuals with ID in the present study.

Limitations of the Study

Power. The small sample size of this study has resulted in under-powered results; however, the findings that were found to be significant despite the small sample size suggest that greater significance may have been obtained with a larger sample. In addition, medical students represented a disproportionately smaller group than physicians-in-training and attending physicians, which may have also been alleviated by a larger sample size. A larger sample may have also yielded a more even distribution of participant demographics, as it is acknowledged that 64.9% of the participants identified as White/Caucasian and, therefore, certain cultural norms may have impacted the results. For example, in some countries, common beliefs about the causes of disability include the consequence of a mother's sins, the presence of an ancestral curse, or demonic possession (African Child Policy Forum, 2011). Therefore, it is possible that cultural beliefs may impact attitudes toward disabled individuals, but information regarding culture and cultural beliefs of participants was not gathered in this study.

Analogue study. Another limitation is that the design of this study relies on analogue data. This format allowed for control across the groups and minimized the variation that could have been present if live patients with ID had been recruited to assist

in conducting the study, which aids in replication ease; however, doing so does not allow space to account for the many other variables that guide physicians' decision-making strategies with actual patients with ID. In other words, a physician's style of decision-making may be moderated by many factors unaccounted for within the clinical vignettes. The patient or caregiver's level of anxiety, the presence of aggressive behaviors, and the presence of other disabilities, mental health conditions, or health issues may all be factors in the physician's chosen approach to either make collaborative healthcare decisions or take on a more directive approach to treatment (Murray et al., 2007).

Isolation of the ID variable. Of additional concern is that this study does not take into account other sources of stigma in healthcare, such as race, gender, socioeconomic status, physical disabilities, other developmental disabilities, addiction, or mental illness, which frequently co-occur with the presence of ID, thereby limiting generalizability. From an internal validity perspective, however, these variables are held constant in the present study in order to rule them out as alternative hypotheses. It is important to recognize that many patients identify with multiple factors of identity that contribute to stigma or potentially unequal treatment in healthcare, such that individuals with disabilities may also come from diverse racial backgrounds, lower socioeconomic classes, or struggle with comorbid addiction or other mental health issues. As such, it is difficult to completely isolate ID as a singular component of stigma or stereotyping, as other facets of diversity are oftentimes present and may further impact the attitudes, knowledge, and clinical decision-making strategies of the physician.

With further regard to the isolation of ID as a variable, the SADP does not measure attitudes toward ID specifically; rather, it examines attitudes toward disability in

general. This presented an additional challenge in isolating participants' attitudes toward the ID population. Given that physicians have been reported to express feeling more comfortable treating individuals with physical rather than cognitive disabilities (Aulagnier et al., 2005), it is important to note that participants may have considered other types of disability when responding to items on the SADP, which may have influenced SADP scores.

In addition, although the clinical decision-making vignettes were developed based on the *DSM-5* criteria for ID (APA, 2013), it is also acknowledged that individuals across ID severity levels may demonstrate unique presentations of the diagnosis. The vignettes were designed as a sample of possible ID symptomatology, and were not designed with the expectation to fully encompass or represent the characteristics of all individuals who are diagnosed with ID of mild or moderate severity. The presentation of the ID diagnosis varies widely from patient to patient. Additionally, although *DSM-5* criteria were followed in order to create the vignettes, the accuracy of the vignettes in depicting a patient with neurotypical functioning, mild ID, and moderate ID could have been strengthened by conducting a pilot study or consulting a panel of individuals with expertise in the area of ID populations.

Social desirability. Some responses to direct questions may have been influenced by social desirability factors. For example, participants may have been reluctant to rate their level of confidence in treating patients with ID due to their desire to be perceived as competent and capable. With regard to the measure of attitudes, the SADP was chosen because it has been utilized to assess the attitudes of healthcare providers in previous studies; however, because it is an explicit measure of attitudes, the

SADP is prone to response bias due to social desirability factors. Therefore, it is possible that participants may have over-endorsed positive attitudes that may be inconsistent with their behaviors in everyday life. Such a concern may be addressed by an indirect measure of attitudes, such as the Breadth-based Adjective Rating Scale (BART; Karpinski, Steinberg, Versek, & Alloy, 2007). Although the BART is designed to be adaptable to assess the attitudes of a variety of groups, it has not yet been used to assess attitudes toward the ID population. Future studies may benefit from focusing on indirect versus direct measures of attitudes toward individuals with ID and may wish to further corroborate quantitative data with qualitative data. The integration of qualitative data may allow for a deeper understanding of the origins of attitudes toward the ID population. The optional, open response text box at the end of the demographics survey allowed participants to share any thoughts or experiences relevant to this study, but was not analyzed for the purpose of addressing the study's hypotheses.

Future Directions

The intention of this research was to contribute to the existing body of literature regarding physician attitudes toward patients with ID by explaining the interface between attitudes, knowledge, and clinical decision-making skills. In examining these areas of professional development, it is possible to suggest educational methods and tools that may be implemented to better equip physicians to treat patients with ID effectively, both in terms of their knowledge of the ID population, as well as their ability to interact and communicate effectively with their patients and any caregivers present. One such suggestion for medical schools may be to encourage medical programs to employ SPs with different disabilities. This format, which is utilized in some medical schools (Long-

Bellil et al., 2011), may be mutually beneficial to medical students as well as those who are hired for these roles. Medical students would have more opportunities to engage in positive experiences with individuals with ID while developing their knowledge of the population and relevant clinical skills. In turn, employing individuals with ID within the medical schools may help to foster a sense of a more inclusive community while providing employment opportunities to individuals with disabilities. Such employment may have a number of benefits for individuals with ID; it is possible that a job experience may relate to increased senses of independence, self-worth, and belonging. Future studies may wish to implement such SP programs and conduct outcomes research on the potential benefits of this education method, for medical students as well as for individuals with ID who are employed as SPs.

Additionally, because the results of this study emphasize the impact of quality rather than quantity of experiences as influencing attitudes, physicians and physicians-in-training may benefit from attending seminars designed to enhance providers' understanding of and exposure to the ID population. Future studies are needed in order to design, evaluate, and standardize such training programs to ensure that outcomes with regard to the enhancement of attitudes, knowledge, and subsequent optimization of treatment approaches for the ID population can be achieved. Additionally, the findings by Hojat et al. (2009) demonstrated a decrease in empathy after the third year of medical school. Based on the findings of the present study that speak to the value of high quality experiences in developing positive attitudes, the timing of introducing such direct interactions with the ID population as part of the medical training curriculum could be of interest in future studies.

Also of relevance is the notion that physicians can expect to treat patients with ID across the lifespan. In consideration of the needs of individuals with ID from childhood through older adulthood, future research may wish to examine healthcare professionals' skills, knowledge, and attitudes toward patients with ID in the older adult population in hopes of identifying ways to best prepare physicians to treat this patient group across the lifespan. In addition, the issue of quality of care remains, such that patient satisfaction will likely depend not only on the areas of the primary care visit addressed, but also the patients' perceptions of their interactions with their physicians. Therefore, the relationship between attitudes and empathy in enhancing patient satisfaction may be further explored, and future research on the value of quality interactions with the ID population may be beneficial in identifying additional ways to enhance the quality of patient care and patient satisfaction. Examining patient satisfaction with the ID population specifically may first require the identification of characteristics or aspects of medical visits that patients with ID value. Once such factors have been identified, the development of a scale to evaluate experiences and satisfaction levels of patients with ID may be worthwhile. In addition, the role of the caregiver remains important in the treatment of a patient with ID. Caregiver satisfaction may be dependent upon a number of factors, some of which may overlap with those that are valued by the patient and some of which may be unique based on the caregiver's relationship to the patient. Further examination and comparison of patient satisfaction versus caregiver satisfaction may help physicians tailor their treatment approaches to meet the needs of both patients with ID as well as their caregivers.

Conclusion

Attitudes physicians and medical students hold toward patients with ID have been shown to be capable of changing in response to training opportunities (Adler et al., 2005; Morgan & K. Lo, 2013; Moroz et al., 2010; Saketkoo et al., 2004; Tracy & Iacono, 2008). Nevertheless, given that the general medical school curriculum does not guarantee students will obtain such experiences during their training, it is important to understand the development of these attitudes and the potential impact physicians' attitudes may have on the quality of care for patients with ID. By examining the knowledge, attitudes, and clinical decision-making of medical students, interns, residents, and attending physicians in a cross-sectional design, this study intended to shed light on the development of these attitudes and their potential effects on patient care. The general outcome of this research found that there was no significant interaction between physicians' level of training and patients' level of ID severity when specifically examining those with mild ID, moderate ID, or typical cognitive functioning based on the variables of physician knowledge, attitudes, and analogue clinical decision-making. Therefore, physicians reported that they were likely to address the same areas of a primary care visit with a patient with ID as they would with a neurotypical patient. Additionally, the present study found that having interactions that were perceived as valuable with members of the ID population related to more positive attitudes toward this group, demonstrating support for Allport's (1954) intergroup contact theory. Medical professionals, particularly those working in primary care settings, can expect to treat patients with ID over the course of their careers. By examining the attitudes of physicians, their understanding of the ID population's needs, and their patterns of clinical

decision-making, efforts can be made to ensure that physicians are and continue to be adequately prepared to provide quality healthcare to individuals with ID across the lifespan.

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Appendix A

Clinical Vignettes

Group 1: Non-disabled

Your patient is a 21-year-old who is presenting for a wellness visit and is accompanied by a parent. The patient appears to be well-nourished, of average height and weight. The patient graduated high school on time and manages finances, scheduling, and appointments without assistance from others. The patient appears to be well-groomed. The patient holds a job at a large retail store. The patient's interests, such as in regard to television shows, movies, music, and video games are typical of same-age peers.

Group 2: Mild ID

Your patient is a 21-year-old with mild intellectual disability who is presenting for a wellness visit and is accompanied by a parent. The patient appears to be well-nourished, of average height and weight. The patient was enrolled in some remedial classes during school and continues to struggle with reading. The patient's parents help to manage money by helping the patient balancing a checkbook. Daily personal care activities, such as hygiene and grooming, are done independently. The patient works independently at a large retail store doing repetitive jobs with some additional supervision. The patient's interests, such as in regard to television shows, movies, music, and video games are those often targeted to the appeal of younger teens.

Group 3: Moderate ID

Your patient is a 21-year-old with moderate intellectual disability who is presenting for a wellness visit and is accompanied by a parent. The patient appears to be well-nourished, of average height and weight. The patient was enrolled in all special education classes throughout school. The patient's parents manage the patients' finances, appointments, and daily schedule. Daily personal care activities, such as hygiene and grooming, are done independently, but take the patient longer to complete compared to other 21-year-olds. The patient works at a large retail store doing repetitive jobs and is often paired with a co-worker for additional supervision and assistance with staying on task. The patient's interests, such as in regard to television shows, movies, music, and video games are those often targeted to the appeal of pre-teens.

Appendix B

Case Vignette Inventory

Dependent Variable Questions (attitudes/treatment behaviors of students, residents, and attending physicians)

- Given the Patient "Chart" or Vignette
  - Typical functioning/non-disabled
  - Mild intellectual disability
  - Moderate intellectual disability

Rate the importance of addressing the following areas with this patient:

- *Not all____A little_____A good deal____A great deal_____Extremely important*
  - Diet
  - Exercise
  - Medication adherence
  - Social support
  - Sexual health
  - Anxiety
  - Depression
  - Alcohol use
  - Drug use
  - Smoking/nicotine use
  - Physical examination
  - Activities of Daily Living
  - Suicide risk
  - Height and weight
  - Sleeping habits
  - Other: Open-ended text box for additional areas?

- Please rate the following (Likert scale):
  - Likelihood that you will speak to a family member or caregiver for additional information about the patient

Not at all likely___A little____A good deal___A great deal____Extremely Likely

  - Your interest in caring for this patient

Not at all interested__A little___A good deal___A great deal___Extremely interested

  - Your confidence in treating this patient effectively

Not at all confident___A little___A good deal___A great deal____Extremely confident

- Was your patient:
  - Male
  - Female

Appendix C

Knowledge Quiz

1. The most accurate term for an individual who was diagnosed with what was formerly known as mental retardation is:
    a. Cognitive Disability
    b. Learning Disability
    c. Intellectual Disability
    d. Mental Disability

2. People with intellectual disabilities receive this diagnosis based on:
    a. Inability to communicate with other people
    b. Deficits in intellectual functioning and adaptive functioning
    c. Deficits in Activities of Daily Living and social skills
    d. Deficits in emotion regulation and learning

3. For a diagnosis, the onset of intellectual disability occurs…
    a. During the developmental period
    b. At any time in a person's life
    c. Before the age of 6
    d. None of these are true

4. An intellectual disability is categorized as a…
    a. Neurological disease
    b. Mental illness
    c. Learning disability
    d. Neurodevelopmental disorder

5. The classifications for intellectual disability are…
    a. Mild, Moderate, and Severe
    b. Mild, Moderate, Severe, and Profound
    c. High functioning and low functioning
    d. Category 1, category 2, category 3, and category 4

6. Intellectual functioning includes…
    a. Judgment
    b. Academic learning
    c. Abstract thinking
    d. All of the above

7. Adaptive functioning includes…
    a. Communication
    b. Social participation
    c. Independent living
    d. All of the above

8. According to DSM-5, the following criteria must be met in order to diagnose intellectual disability:
    a. Deficits in intellectual functioning
    b. Deficits in adaptive functioning
    c. Onset during the developmental period
    d. All of the above

9. A child who presents with developmental delays is eligible for early intervention services between the ages of…
    a. Birth to five years
    b. Birth to three years
    c. Three to five years
    d. None of the above

10. A patient with ID who is experiencing pain may potentially exhibit which of the following?
    a. Aggression
    b. Rocking
    c. Grimacing
    d. All of the above

11. Which of the following is a known major contributing factor for disease in the ID population?
    a. Smoking
    b. Obesity
    c. Sexual activity
    d. Alcohol abuse

12. Which of the following should be addressed in an annual visit for a patient with ID?
    a. Pharmacotherapy
    b. Counseling
    c. Behavior management
    d. All of the above

13. Individuals with ID are more likely than nondisabled individuals to encounter which condition(s)?
    a. Ear infections
    b. Gastrointestinal issues
    c. Both a and b
    d. Neither a nor b

14. Individuals with ID are more likely than nondisabled individuals to encounter which condition(s)?

a. Respiratory problems
b. Food allergies
c. Eczema
d. All of the above

15. Which of the following neurological concerns are common among the ID population?

a. Seizures
b. Migraines
c. Both a and b
d. Neither a nor b

16. Increases in challenging behaviors may be evident if a patient with ID is experiencing which of the following?

a. Pain
b. Sleep disturbances
c. Both a and b
d. Neither a nor b

Items 1-8 (APA, 2013)

Items 9-12 (Zeldin & Bazzano, 2016)

Items 13-15 (Schieve et al., 2011)

Items 16 (de Winter et al., 2004)

Appendix D

Demographics Form

1. Age

   (age scroll bar here)

2. Gender

   Male

   Female

   (open response text box here)

3. Race:

   White/Caucasian

   Black/African American

   Asian/Pacific Islander

   Latino/a

   Other *(open response text box here)*

4. Current status as a medical provider:

   3rd Year Medical Student

   4th Year Medical Student

   Resident

   Intern

   Attending physician

5. Type of medical school attended:

   MD program

   DO program

6. Specialty/Area of interest:

Family Medicine

Obstetrics/Gynecology

Pediatrics

Other *(open response text box here)*

7. In what ways do you know a person or persons with intellectual disability? (Check all that apply):

___Spouse ___Child ___Sibling ___Other relative

___Client, patient, or student ___Co-worker ___Employee

___Neighbor ___Friend ___Not Applicable ___Other *(open response here):* ___

8. Rate the extent to which intellectual disability was addressed in your medical school lectures and courses:

Very Little					A Great Deal
1	2	3	4	5	6

9. Rate the amount of interaction you have had with patients with intellectual disabilities during your medical training:

Very Little					A Great Deal
1	2	3	4	5	6

10. Rate the quality of your interactions with patients with intellectual disabilities during your medical training:

Very Poor					Excellent
1	2	3	4	5	6

11. Rate the amount of interaction you have had with individuals with intellectual disabilities in your personal life:

Very Little					A Great Deal
1	2	3	4	5	6

12. Rate the quality of your interactions with individuals with intellectual disabilities in your personal life:

Very Poor					Excellent
1	2	3	4	5	6

13. *Optional:* Please feel free to note any significant experiences in the past or present that you believe may have impacted your approach to providing care to individuals with intellectual disabilities